

May 14, 2001

MEMORANDUM TO Ashok C. Thadani, Director
 Office of Nuclear Regulatory Research

FROM: Thomas L. King, Director /RA/
 Division of Risk Analysis and Applications
 Office of Nuclear Regulatory Research

SUBJECT: MEETING WITH EXELON GENERATION COMPANY, DOE AND
 OTHER INTERESTED STAKEHOLDERS REGARDING THE
 PEBBLE BED MODULAR REACTOR

On April 30, 2001, from 10:00 PM to 4:00 PM, the NRC staff met with the representatives of Exelon, Department of Energy, and other interested stakeholders to discuss the Pebble Bed Modular Reactor (PBMR) pre-application goals and approach. The meeting was widely attended by the industry and other stakeholders. Attachment 1 contains a list of attendees. Exelon presentation material is included in Attachment 2, the NRC presentation material is in Attachment 3, and a discussion paper titled, "Proposed HTGR Licensing Frame Work Approach for the PBMR," submitted by Exelon is included as Attachment 4.

Following brief opening remarks by A. Thadani (NRC) and J. Muntz (Exelon), Exelon presented its proposed approach and schedule for establishing a regulatory framework and discussed several process, legal and financial issues related to PBMR licensing. At this meeting no formal NRC response was requested; however, Exelon solicited the staff's views and feedback on various aspects of its presentation and committed to provide additional information. A summary of each area discussed is provided below.

Regulatory Framework

Exelon plans to propose a Gas Reactor Regulatory Framework based on a Modular High Temperature Gas Cooled reactor (MHTGR) framework, which was developed by DOE in the 80's. In the MHTGR framework frequency and consequence criteria were established to select licensing basis events and applicable requirements. Exelon plans to apply a similar approach for the PBMR design. The framework, would be used for selecting the licensing bases events as well as the safety-related systems structures and components (SSCs).

Licensing Process

At present, Exelon is considering a combined license application in December 2002 for the first PBMR module. For the first module, it plans to proceed with the early site permit (ESP) option, filing an ESP application in July 2002. The proposed schedule and critical path for ESP

application review and approval (about 22 months) and COL application review and approval (about 27 months) were presented. Additionally, critical steps for the design certification review and approval process (about 23 months) were identified. It was stated that Exelon's application for design certification may be submitted as early as 2005, before completion of the prototype testing in South Africa. However, in that case, the results of the prototype testing will be included as an amendment to the application. The schedule presented appears to be very optimistic, given the status of the design and the uncertainties associated with technical and licensing issues.

Legal and Financial Issues

Exelon discussed legal and financial issues, specifically, those which are viewed as presenting unique challenges to PBMR licensing. These included anti-trust review, decommissioning funding, financial qualifications, secondary financial protection, emergency planning, annual fees, operator staffing, uranium fuel cycle and the number of required licenses.

It is likely to be proposed that the PBMRs to be licensed in the U.S. under merchant nuclear power plants be exempted from some of these regulations. Exelon plans to formally submit discussion papers on the legal and fiscal issues in a few weeks following the meeting. It was also mentioned that NEI is considering to submit to the Commission a paper addressing the anti-trust issues. The NEI paper, while discussing the legislative history, may also petition the Commission to initiate a rulemaking to address the anti-trust issues.

Thomas L. King presented a summary of the staff's proposed PBMR pre-application review plans. The objectives of this plan are to (1) assess the key technical, design, safety, licensing and policy issues associated with the PBMR; and (2) develop a core infrastructure of analytical tools, and expertise needed for the NRC to effectively and efficiently review a Modular HTGR license application.

It was proposed that five topical meetings be held, typically at 2-month intervals, to discuss the following pre-application topics: (1) licensing process (subject of the April 30th meeting), (2) fuel performance and qualification, (3) PBMR design, (4) fuel cycle, and (5) PRA, SSC safety classification and regulatory framework. The staff also encouraged Exelon to brief the ACRS early on to facilitate expeditious review in the future.

The meeting adjourned at 4:00 pm. Any questions regarding this meeting should be addressed to Thomas L. King (301) 415-7590 or tlk@nrc.gov.

Attachments: As stated

Distribution: w/attachments

DRAA Chron, MWeber (NMSS)

w/o attachments

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All attendees listed in Attachment 1

***See previous concurrence**

DOCUMENT NAME: G:\Meeting Notices\Meeting Summary. EXELON-1-30-01.WPD

OAR in ADAMS? (Y or N) Y ADAMS ACCESSION NO.: _____ TEMPLATE NO. RES-____
Publicly Available? (Y or N) Y DATE OF RELEASE TO PUBLIC 5 days SENSITIVE? NO

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(RES File Code) RES

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